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✦ THE FARM ✦ CEMENT NEWS

A PERIODICAL DEVOTED TO THE USES
OF CONCRETE ON THE FARM



VOL. 2
NO. 3

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Prize Winning Photographs
Farm Construction in Concrete
(For details of contest see page 28.)

A Wisconsin Dairy Farm

Southern Wisconsin is one of the richest farming and dairy regions in the middle West. Hundreds of towns ranging in population from several thousand down to less than a hundred are found close together through this region as through much of the East. There is a large output of dairy products as well as general farm produce.

Land is not cheap in this region and these farmers are perhaps the most progressive in the country. A trip on any of the electric railways furnishes a panorama of first-class farm houses, well kept fences and of modern improvements.

Thiensville, 12 miles north of Milwaukee, is a town of several hundred, centered about a flour mill and creamery. A dam across the Milwaukee river furnishes power for the mill and on the lake above the dam are situated a number of well managed farms.



Permanent Concrete Farm Buildings—View From the River
Thiensville, Wis.

Mr. George O'Neil owns one of these, consisting of gently rolling fields, new farm buildings and modern labor saving equipment for handling produce. The latter are more extensive than are generally thought profitable by farmers who expect to make the farm pay. Of course, there are some farms which are only run as a recreation to their owners and where profits are not expected. Their improvements have been carried so far that the actual income from produce sold is not sufficient to cover the interest on the investment nor to keep up the repairs, but this is a different proposition. Mr. O'Neil, the owner, is a business man of Milwaukee, and runs this not alone for pleasure, but for profit as well. Incidentally, it is a satisfaction to manage such a farm, to have what people will come hundreds of miles to study, to give an object lesson for farmers about him in the modern, sanitary and labor saving methods of farm management.

From Thiensville the writer was ferried across the river to the farm. It was only a few hundred feet across, but a half-mile around by the

bridge. The farm lies along the Milwaukee river; the land is rolling and the pastures lead down to the river so that the cows have at all times plenty of fresh water. The barns and out-buildings are set in almost the exact center of the farm, so that the minimum of hauling is required. Placing farm buildings at the road is a common mistake. Many farmers have their house on the road and the barns near the house, whereas they would actually save many days' time during the year for themselves, helpers and animals by making the trips shorter about the farm.

The farm is run by Mr. O'Neil's manager, Mr. Knudson, who has a house about five hundred yards from the farm buildings, in a small patch of cedars along the river. A boat is kept conveniently near the house to carry members of the household to town.

The first picture of this series shows the general appearance of the buildings from the river on the north. The barn, about 120x60 ft. in plan, is built of concrete up to the second story. Instead of giving one building over entirely to the storage of hay and grains, and another to horses and cattle, a barn has been built for both, the wooden upper struc-



View From the South
Thiensville, Wis.

ture resting on top of the concrete cow and horse stables. A bridge of concrete at an easy slope leads to the second floor on the north. Stalls for twelve horses and tie-up for over thirty head of cattle have been planned within the concrete walls and under a tight concrete roof which forms the floor of the structure above.

This building is ideal from the standpoint of sanitation. The views of the dairy barn interior show how perfectly everything has been worked out for the saving of labor as well as for keeping the product, milk, in the cleanest possible condition. The first shows the run-way between the mangers. These are of steel and can be raised for cleaning so that no old feed accumulates. The feed is carried to each of the mangers by a small truck, which is set beneath the chute of the silo. The truck holds enough so that only a few trips are necessary and moves so easily that one man can care for the feeding in a few minutes. "James" equipment has been used throughout.

Looking down the second alley-way can be seen the concrete gutters, which are sloped so that they drain directly to a concrete tank. Occasionally these are flushed out and are always kept in perfect condition, forming a marked contrast to the dairy barn alley of a few years ago. At the end of this alley-way may be seen the pens for the calves. A number of pure bred Holstein calves may be seen, but the stock was kept outside during the making of the pictures. Litter is taken out by an overhead carrier on a trolley. A track bolted to the ceiling inside and suspended for 15 ft. outside of the main door can be seen in the following pictures, which allows unloading into a wagon just outside the barn. The old method of piling manure out in the barnyard, where it leaches out and sun-



Cattle Barn Runways—Concrete Construction Throughout
Thiensville, Wis.

dries, has given way among a great many farmers to this easy and economical method of handling by which a wagon is always kept outside the door and litter is carried out, dropped into the wagon until it is full, and the load hauled immediately out to the fields. There is thus no chance for rain to

wash out the best of the fertilizing value of the manure. Only a few hours elapse before it goes back to the fields. There is also no time of year when a large amount of time has to be spent in hauling manure to the fields. The question was asked the manager if there were not certain times of the year when there was no place to deposit the manure, but he said for the few months when the crops were growing that there were pastures which

required the same treatment as the fields. As the pastures and cropped fields are rotated, the arrangement is ideal, making an all-year round disposal of barn litter with an equipment consisting only of one wagon and an overhead carrier system.

Of course, the floors throughout are of concrete, as are also the walls up to the second story, the columns supporting the floor above and the floor itself. Concrete stairways lead to the second floor; bins and tanks are built of concrete, solid and immovable with no cracks or crevices to harbor mice.

The partitions upstairs, like the upper walls, are built of wood joists but covered with sheet iron inside. The partitions are so tight that our photographer was able to reload his plate-holders by merely hanging a



Concrete Approach—Ice House—Dairy Room
Thiensville, Wis.

double canvas blanket over the doorway of an oat bin. The walls were light-proof, mouse and rat-proof. From each bin leads a chute with a shut-off down stairs.

Perhaps the feature of greatest interest is the concrete approach to the second floor which forms not only a storehouse for ice, but also a dairy room. The door to the ice house is near the outer end and is plainly seen above. It has no windows but eight small circular openings which can be readily closed. In this way space is used which otherwise would be valueless and the walls of the approach which would otherwise serve no useful purpose except to hold the fill is made use of. Farther in where the ceiling is higher, the space is used as a dairy room. Its door leads out into a covered passageway beneath the bridge and is directly

opposite a door leading into the cow stable. It has two windows, is floored with concrete and has a concrete shelf on the inner side.

This room has special advantages for the storage of milk. Its roof is of concrete and on top of the concrete is an earth fill of about one foot. It is thus only exposed to the sun on two sides, the third being against the ice house and the fourth being shaded by the bridge. No water tanks are needed in this room for cooling the cans of milk, as the normal temperature of the room is kept sufficiently low by the ice stored in the next room to keep the milk in perfect condition.



**Horse Stable and Concrete Stairway
to Second Floor**
Thiensville, Wis.

Another feature that deserves mention is the building used as a hog and chicken house. It is really two structures on different levels, with continuous side walls and a common end wall. The chicken house has concrete floors and walls, but lumber is used for the nests and roosts. These are easily removed, being hung from hooks. Whitewash can be applied to the walls direct and the building can be flushed out with water when necessary. The roof has not been made of concrete.

If the same careful design had been used for the chicken and hog house that was used for the main building, it would certainly have had a concrete slab roof as well, but they have used a roof of heavy cross beams

of native timber, sheathed and covered in the usual way. The hog house, too, is of interest. There are five openings leading to the hog pen and these doors are framed in wood. The partitions between the pens are of wood which can be lifted out during cleaning. A doorway leads from the chicken house to the hog house and there are doors on either end of the long double building.

From the hog house it is but a few feet out to the hog-wallow. This is about 35 ft. across, is lined with concrete 5 in. thick and makes an ideal place for hogs to cool off on hot summer days. It was made in a natural depression in the ground and required but little grading and is arranged so that the hogs can find water of any depth. The wallow can be drained when necessary for cleaning.

Between the chicken house and the barn there is a wind break of concrete; simply a concrete wall 1 ft. thick and ranging from 6 ft. to 8 ft. high. The ground slopes down about 6 ft. so that a step was made in the wall as shown. There is no doubt but that this fence could have been



• • • Concrete Chicken and Hog House
Thiensville, Wis.

built more cheaply out of wood, but it is now a continuation of the barn wall and chicken and hog house wall, and the three buildings are a unit.

Of course, there is a concrete silo. Eventually there will be two a few feet apart. The walls are of monolithic construction, 5 in. thick on a foundation wall 1 ft. thick. The walls are carried up to the level of the eaves of the barn and the original plan called for a wooden roof. It was thought that a wooden roof would not only be cheaper, but would be the only feasible type of construction. The contractor, however, offered figures on the cost of constructing the roof of concrete at the same time the walls were cast and it was found to be actually cheaper to construct of concrete than of wood. This was because the concreting plant was already on the ground and to mix a little more concrete after the walls had been

cast was but little added expense, while to have carpenters make a permanent framed roof, shingled and air tight, would have entailed considerable extra outlay. The chute connects directly with the barn. Silage is dropped down the chute to the first floor level, falling directly into a feed truck at the bottom. This saves one handling of all material coming out of the silo.

These are not the only features about the farm in which concrete has been used. There were some problems to be solved in the use of concrete in the cow stable. It was thought best to insert in the concrete, panels of wood 3 ft. square where the cows stand. These were put in place and the concrete poured about them so that they fit perfectly and when renewal is necessary, they can be easily taken out and similar sized pieces inserted.



**Hog House Interior Showing
Concrete Walls and Floor**
Thiensville, Wis.

The stanchions of steel were set up in place and the floor cast around them, so that they are solidly imbedded in the floor. There is no possibility of rats infesting the place. There is no place beneath the floor or elsewhere where they may get through and this condition will exist as long as the building stands. With wood construction the walls and floors may be tight at first, but shrinking and warping soon opens up cracks and rats have no difficulty in getting from floor to floor.

It might seem that buildings constructed in this way would be cold and clammy, or would seem cellar-like. Exactly the opposite is true. The walls are warm and do not attract moisture. The windows are close enough together so that the rooms get plenty of sunshine and ventilation. These would seem to be ideal conditions for housing dairy cattle,

Mr. O'Neil years ago was a reader of our first few issues of "Farm Cement News." He planned to rebuild and talked over new buildings with his foreman. He showed his foreman a few pictures in "Farm Cement News" which showed the concrete work of others and thought it would be a good plan to study into the cost of such a barn. He had an architect draw up plans which, with several modifications made by Mr. O'Neil, were submitted to a contractor of Milwaukee.

The contractor designed the concrete features and commenced construction on a time and material basis. We cannot give the figures of



Silo and Barn—Monolithic Concrete Construction
Thiensville, Wis.

cost, but they were so satisfactory to Mr. O'Neil that several smaller buildings that have since been added, have all been of the same type of construction. They not only look neat, both outside and inside, but give the place an air of prosperity that no other material can furnish. These are buildings that will be just as good fifty years hence as they are now.

Dairy products from a farm such as this command higher prices in such markets as those of Milwaukee than do products from the average farm. The slightly greater cost of such buildings is compensated for in the higher prices obtained and the constant freedom from repair bills.

Do You Own a Concrete Mixer?

A concrete mixer is a wonderful labor saver for the concrete worker. On big jobs, the tremendous amount of concrete to be mixed would make work impossible, unless there were some such device. Concrete mixed mechanically is of the best quality, for it is thoroughly mixed. It is hard to overload a gasoline engine and gasoline is cheap. Man power is costly and needs watching. For these reasons, concrete for city buildings is mixed mechanically. Contractors are even using mixers for small



Concrete in the Dairy Room

Concrete for floors and tanks is a necessity, and concrete for foundations and walls is an economy.

sidewalk work. The few yards of concrete are so much more easily put through a mixer than prepared by hand that there are many machines on the market now, a combination of a small mixer and a gasoline engine, mounted on trucks, which are making contractors' work much more profitable and giving a better product than could be made by hand.

A mixer costs too much to be justified if it is only to be used for building one small farm job.



Concrete Mixer Made From a Barrel

This interesting view shows a home-made mixer run by a small gasoline engine which can also be attached to the pump. The mixer is a gasoline barrel with an opening cut in one side and arranged to rotate on a piece of iron pipe. A rope belt passes over the barrel near one end, a tight cover can be bolted over the opening. With it concrete mixing has been easy for the owner, Mr. R. C. Saben of Ludington, Mich.

In the last number of "Farm Cement News" we suggested that the farmer should get a group of his friends to buy a concrete block machine on shares, so that each could use it at the time when his other work was not pressing, and by having the ownership among ten, the investment of each man would be very small.

A concrete mixer would be even a better proposition for a group of progressive farmers. Perhaps half of the improvements on the farm may be built with blocks, but all require concrete mixing. A first-class outfit, an engine that will stand a good deal of hard



Concrete Greenhouse Walls

Greenhouse construction is subjected to the hardest conditions. Lumber soon rots out. Progressive greenhouse men and truck gardeners are using concrete in such construction nowadays, for not only the walls up to the level where glass begins but in many cases for the benches, for walks and for all the minor purposes.



Concrete Block Silo and Elevator

No material has been found superior to concrete for silo building. Some prefer blocks, some prefer monolithic concrete. With blocks it is easy to put a ladder of bent iron rods, inserting them in the joints between every third course.

usage, and a mixer that will, with reasonable care, last through many seasons, can be bought from any one of fifty manufacturers at a price between \$200 and \$500, according to the size. If buyers were assured that this would be a permanent piece of equipment, that it would not rust out or wear out after the first two or three of the owners had used it, there would be little difficulty in finding five or ten men to go into such a proposition.

The trouble would be that no one man would be responsible for the condition of the mixer. We would recommend that some one man be given entire charge of the outfit, that he should go with it to each farm where it is

needed, to manage the machine, to clean it up after the concrete has been run through and to see that the engine is drained in winter and that it is suitably protected between jobs. Only in this way will a machine stand heavy use over a long period.

But contractors have found out how to make these machines last. Somebody has the responsibility, someone will stand the loss if the engine cylinder is not drained when a cold snap comes, and bursts. Run this way, a concrete mixer would be the greatest labor saver farmers could own.

More and more, concrete improvements are replacing



Concrete Block Silo

This silo is 18 ft. in diameter by 38 ft. high and was built by the Pingree Grove Cement Tile & Block Works for William J. Hood, of Pingree Grove, Ill.

those of timber. But the big things now require so much heavy labor in mixing that either a concrete contractor is called in, or work is built with the older, less lasting materials. This would be a solution that should not be expensive. If you want to take this up with the mixer manufacturers let us suggest to you the names of those who have the machines best suited to your needs.

The farmer should be cautioned against buying too big a machine. The smaller mixer will take a little more time to mix a yard of concrete, and yet for the average run of work it will be just as satisfactory and



Tree Surgery

This work was done on the farm of Dr. F. Johnson, Glen Ellyn, Ill., and shows the possibilities of repairing not only small injuries but cavities which would otherwise destroy the tree in a few years. Eventually the bark grows over repairs even as large as the one illustrated here.

much cheaper. The smallest mixer is big enough to use even for arch bridges over small streams, though it will take longer, of course, for mixing.

By clubbing together the cost will be small. Talk to your local contractor and get his ideas on the question of hand or machine mixing. Then write to the INFORMATION BUREAU of this company, who will gladly furnish you the names of those mixer manufacturers who have suitable machines for your use. This will not obligate you to buy a mixer but will only present to you the facts as to cost and capacity of mixers. Get ready for the spring building now.

Good Roads of Concrete

Progressive farming calls for good roads no less than for new farm machinery and new methods of cultivation. Roads must be passable at all seasons of the year for best marketing conditions. Social intercourse is almost entirely dependent on road conditions. It is hard to estimate losses in dollars and cents due to bad roads, but the farmer can realize them by comparing conditions during good weather with those in the spring-time. The country is gradually waking up to its need of good roads *all year long*.



County Highway of Concrete
Wayne Co. (Detroit), Mich.

The United States Department of Agriculture has recently been studying road conditions, has conducted a school for engineers in practical road building and is sending out graduates in every direction to carry on road improvement. But the Government should not be called upon to do the whole work. The County, State and National Government must join hands. In some states the laws now provide for a division of cost of road work between township, county and state, or between county and state, the result being very satisfactory.

The roads of the United States upon which improvements are needed aggregate over 2,000,000 miles.

Serviceable roads increase the market value of property. In the

United States, of land worth less than \$20 an acre, 1.9% of the roads are improved. On lands worth more than \$20 per acre, 9% are improved. The percentage goes up to 35% in Indiana, where the average value is about \$55. A well-kept farm located on a smooth, hard road has easy access to markets, schools and churches and will not lack ready buyers at a good price.

Why has there been such an awakening of interest in roads lately, especially in the study of dust prevention? The Government is studying every class of highway, including the concrete road. The asphalt and bitumen manufacturers are pushing and advertising dust preventives and are doing a great deal of missionary work to introduce their products. It



Concrete Pavement

Fond du Lac, Wis.

is, in a way, pure advertising, and yet it is bringing strongly before the people a real need. In the same way, we are enthusiastic about the future of concrete for country roads as well as town pavements. Our unprejudiced study of road conditions, road up-keep and comparative first costs of the various road materials now used leads us to believe that concrete will eventually take first place as a permanent road material. It has advantages not even claimed for other systems.

In Europe splendid macadam roads are maintained by dividing up the total mileage in small sections and placing each in charge of a repair man who gives his whole time to filling holes and ruts. This means a tremendous expense for repairs, but it saves money in the end and is now being adopted in the more thickly settled parts of this country. But the

concrete road offers something better. It offers a road which needs neither repairs nor inspection. It offers a road which costs little more and in some cases less than first-class macadam construction, and a road whose first cost will cover 20 or 30 years of constant heavy use with no repairs.

Actual examples of such roads have given it wide publicity as a possible road material. Where built, they have met with full approval and in most cases have been adopted as standard for future construction. The Government's experimental roads at Columbus, O., and Ithaca, N. Y., each have concrete sections and when the wear occasioned by ten years' traffic on these experimental roads is tabulated and published, we believe that the concrete sections will show such superior service and such low costs as to greatly increase the demand for concrete road construction. Certainly the Government will favor the no-repair road of concrete.



Finishing Concrete Pavement
Fond du Lac, Wis.

At Bemidji, Minn., concrete pavements have been used with perfect success. They have been down now for several years and the city is putting in more of the same type. Grand Forks, N. D., has its best residence as well as business streets paved with concrete and is this year putting down more. They have made changes in the method of laying these pavements, but are not getting away from concrete as the essential material. A few of the notable uses of concrete for pavement are at Chicago, Washington, New Orleans; Toronto, Canada; Windsor, Ontario; Denver; Bozeman, Mont.; Mason City, Iowa; LeMars, Iowa; Richmond, Ind.; Fond du Lac, Wis.; Ann Arbor, Mich.; Jackson, Mich.; Bellefontaine, Ohio; Allentown, Pa.; Monroe County, N. Y., and Summerville, Mass. These are but a few of the successful uses.

Most of these are town roads. Country roads differ in no degree except in width and in the amount of traffic which they have to withstand.

About the same costs will obtain in the country as in the city, and these are so low, ranging from 85 cents up to \$1.50 per yard, that they compare favorably and in many cases are cheaper than the best of the older types. Wayne County (Detroit), Mich., has made strikingly successful use of concrete for county highways. The County Road Commissioners during the last year made 98% of their county road improvements of concrete. These were at a cost of from \$1.10 to \$1.80 per square yard, including grading, being heaviest where much grading was needed. We could name 50 other places where concrete has been successfully used. The advantages gained in cities and towns will be even more marked on country roads.

We advise County Commissioners to study road materials. There is a paving material which will not cause a continual drain on the county's



Concrete Gutter

A concrete gutter prevents the washing away of a roadway and prevents driving over the grass. It is the simplest kind of concrete work and never needs repairs or renewals.

resources for repairs, but will allow the funds of the county to be used year after year in new pavements, instead of repairing old, extending the benefits of good roads throughout the county. Increasing the amount of stone roads will mean that after a certain length of time practically the entire funds available for roads must be used in repairs.

If your County Commissioners are strongly in favor of macadam, take up the question of permanent paving with them. Present these figures: A 16-foot concrete road 6 inches thick, with gravel shoulders on both sides, built where heavy grading will not be necessary, may cost as low as \$1 per square yard. This will mean a cost of \$9,400 per mile. If you will investigate the cost of first-class macadam roads of equal width that have

been constructed in your county lately, you will probably find that their costs have been equal to or more than \$9,400 per mile. You will find also that the macadam roads have needed repairs and that the cost of these for a five-year period amounts to a large percentage of the first cost or else these roads have been neglected and are now in bad condition. Five years of service has shown no wear on many concrete pavements now in use.

This means that where concrete roads are built the county tax money will all be spent in the future for new work and not for repairs to the construction of previous years. This will mean that the percentage of first-class roads in your county will increase, year by year, and the cost of repairs will be a decreasing item until only the less-used roads require a yearly repair outlay.

This means a great deal to you, tax payers. This means a great deal to you whose income is derived from products which you haul to the markets. This means a great deal to you who have to travel over country roads for your recreation and social life. This means a great deal to you who have children of school age and are debating whether the county school, with bus service to gather the children of the entire county under one roof, with the accompanying better educational conditions, is possible under your county road conditions.

Make good roads your study. Interest the County Engineer, the Commissioners and the Supervisors in this proposition. If they do not seem interested, send to us for our Pavement Book with Specifications which give

the actual costs and the service obtained from concrete pavements in many counties and towns. Lay these facts before them. You can get a repairless road of concrete for the main arteries of travel at the same or less cost than a road which will be a constant drain on the county's funds. Investigation will prove this to you. Concrete will be the road material of the future.

Automobile traffic, so destructive of ordinary macadam or gravel roads, has absolutely no effect on concrete.



Concrete Hoghouse and Wallow

The concrete foundation has been carried several feet above ground and a hog wallow built as part of the concrete floor.

Interlocking Concrete Blocks for Silos and Tanks

A silo system which was not mentioned in our Silo Book, and yet which promises to give silos and tanks of permanence and comparative cheapness, is owned by the Chas. B. Hurst Company of Chicago. Their system comprises the making of blocks 12x24x4 inches, molded on a curve to fit the outer circle of the proposed silo. Each block is reinforced with two soft steel $\frac{3}{8}$ -inch rods, turned up at the ends $2\frac{1}{2}$ inches. A course of these is laid on a concrete foundation so that the upturned ends of the reinforcing are adjacent and the blocks abut. Links of soft steel rod are then placed over these ends and the rods bent back to make the reinforcement continuous and give tension throughout the rings. Successive block courses are then laid up and each fastened as the first, and finally the connection spaces are filled with cement and the silo plastered on the inside until it is smooth and tight. The cost of such a silo, 12x30 feet,

with a concrete foundation and shingled roof, is approximately \$390.

The same system is being used in the making of tanks. In an earlier number of "Farm Cement News" we showed "Dan Patch" drinking at a tank constructed of these blocks.

Sometimes the upper 5 or 10 feet of the silo is used as a water tank, a reinforced concrete floor being cast 20 or 25 feet above ground level, and the blocks being carried up in an identical manner as for the silo, but being plastered with greater care for perfect water tightness.

This makes an economical water supply system, as the



Concrete Block Silo

This 12x30 ft. silo was constructed at Spring Grove, Ill., for Mr. J. W. Sanborn, at a cost including foundation of \$390.00. The ladder is composed of iron rods inserted between block courses.

walls commonly constructed for silos are plenty strong enough for holding up a tank and are ordinarily not used to anything like their full load capacity. The same roof is then used. With this type it is a little more difficult to fill and compact the silage for the upper 5 feet, but the large number of such tanks built in the last few years has proven their practicability and will furnish a pressure water supply which should be appreciated on any farm.

A Modern Fence—A Money Saver

Concrete fence posts supporting galvanized steel wire fencing can be found along almost every road nowadays. They enclose the best farms.

The United States Department of Agriculture advocates concrete fence posts. Their Farmers' Bulletin No. 403 tells how to make them. The



Concrete
Water
Trough

On the farm of Mr. Wilbur Soverhill at Tiskilwa, Ill., are many concrete improvements. Among them is the above tank which is placed between two pasture lots, half on either side of the dividing fence. The tank is fed by springs and was built once for all time, requiring now neither pumping nor repairs.

Government will not advise farmers to build concrete fence posts, to put lime on their soils or to plant leguminous crops in rotation with grains until they know the worth of their suggestions. The Government endorses the concrete fence post. For the farmer who wants long-lived fences, with posts that will last indefinitely, posts that cannot be hurt by grass fires, posts that will not rot even in swamp land, there is nothing so good as well-made and properly reinforced concrete posts.

These may cost a little more than wood, but the extra expense is not nearly as great as the added value. While a line of wood fence posts looks very strong, trim and neat while new, the test comes after ten or fifteen years. The concrete posts should be like new after twenty years. The wood posts will have been replaced.

If you want to do away with your fence repairs and renewals, take the Government's suggestion and make your posts of concrete. It will pay back many times the cost in added satisfaction, longer life for the fence, and increased selling value of your property.

The picture on this page shows the fence posts made by Mr. C. N. Pettegrew, a farmer near Tiskilwa, Ill. The fence is typical of all his other farm improvements. The same kind of fencing is being used on a near-by farm, that of John Bachman. The upper picture shows fifty fence posts ready to set. They are square below ground and have corners beveled off for about four feet above ground. Staples have been inserted when the concrete was cast,

at just the intervals needed for attaching woven wire fence. Two staples were placed a half inch apart to hold each wire. When set, the fencing is laid against the posts, one wire between each two staples and a key wire inserted running from the top of the post to the ground, through each staple. This makes it possible to pull up the entire fence line from one end, and, if necessary, take off the fence entirely with



Concrete Posts Ready to Set
Farm of John Bachman
Tiskilwa, Ill.

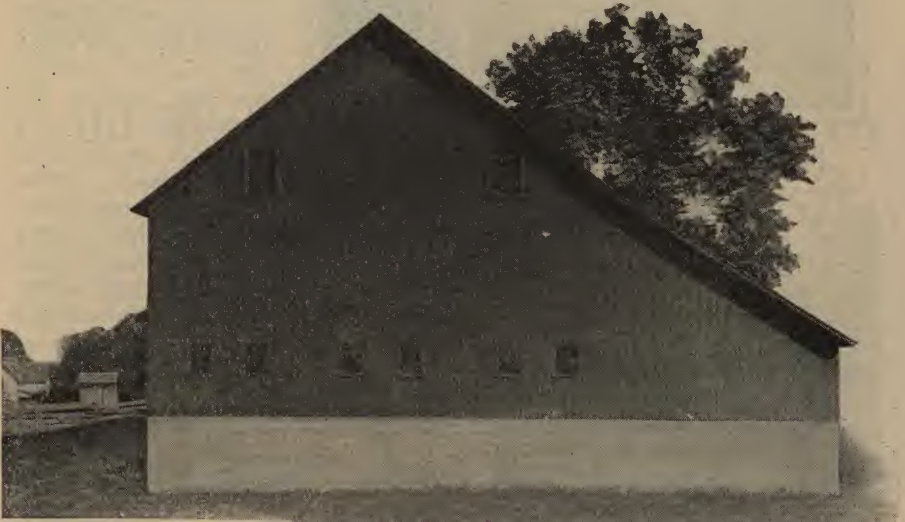
Concrete Fencing
Farm of C. N. Pettegrew
Tiskilwa, Ill.

little difficulty. Renewal might be made over a forty-acre field in a few hours. The staples are heavily galvanized, so that they have practically the same life as the posts. There are many devices on the market for fastening wires to concrete fence posts. It is not so much how

this is done as it is in having a post which will not rot out. The fencing can be wired to single staples or can be tied by wire passing around the post. These are mere details and each farmer can use his own ingenuity.

Our "Farm Cement News" Nos. 7 and 8 cover the making of concrete fence posts perhaps more thoroughly than even the Government bulletin, and we will be glad to send copies to anyone interested in concrete post making and answer questions about special problems that may occur to you.

Where a fence is in bad shape, the farmer often can replace a few posts and save the line. In the end, he would probably prefer to have an all concrete fence. The Twin Post Company of Racine, Wis., has brought out a system by which posts that have rotted off at the ground can be fastened to a concrete foundation, cast two feet or more deep and to which the upper part of the post can be wired securely. The concrete extends up six inches above ground level to a point where the usual rotted off post is sound. In this way the fence does not have to be loosened or



**Concrete
Barn Foundation**

This barn is on the farm of Mr. A. N. Stevens at Tiskilwa, Ill., and is a particularly clean job of concrete work. The foundation of concrete forms the walls of an extensive store house on the first floor.

taken off the post. A hole is dug beside the old post, the old butt is taken out and a concrete block cast below the ground 2 feet deep, 6 inches thick and 12 inches long. This comes up to ground level. The earth is preferably under-cut so that frost will not heave the block out of the ground. On top of this block a steel form is placed, making it possible to cast a shaped top with a notch in the center to receive the broken-off post. At the point where the cast top meets the underground portion,



**Building a
Concrete Silo**

This picture shows the outfit which was used in building a silo on the farm of Mr. W. S. Dunham, Wayne, Ill. It consists of a mixer, a gasoline engine, a coarse screen, a wheelbarrow, a hoist consisting of ropes passing over pulleys at the silo top, and the necessary gravel, sand and cement. In the background is a barn with the first story constructed of concrete. It has windows at short intervals and is light and airy, making an ideal place for keeping cattle and horses.

needed. There would be no danger of further rotting or of burning, as the post would be held six inches above ground.

The same concern is advocating the use of a flat slab 8 inches thick, 16 inches wide and 28 inches long, with the same cap as used for the previously described post, for a temporary fence. These slabs are to rest on top of the ground wherever fence is needed for a few weeks or months. Posts are wired permanently to these, and their weight, about 135 pounds, keeps them in place. If a tighter fence is needed, these foundations can be staked down, making it possible to pull the fence almost as tight as if ordinary posts were used.

Many farmers are skeptical about trying new devices and new plans which these entail. It may or may not be worth while, and the proper attitude for the farmer is to be skeptical and wait for proof, preferably to let some one else do the experimenting where much money and time is at stake. But with concrete so cheap, the farmer can afford to experiment with fencing, troughs, tanks and hundreds of things that are possible to make in concrete. The loss of an afternoon's time and a dollar's worth of material does not amount to much if it leads to something that will be a money saver to him for all future construction. Send for the Government's or for our book on fence posts. Start the movement in your region for PERMANENT FENCING.

there are two rods inserted lengthwise which are removed after the concrete has set, leaving holes in which 60-penny nails can easily be placed. A hole is then bored in the post three feet above ground to hold a bolt or spike and the post is wired on to its foundation with No. 8 galvanized iron wire. Two wires hold the post from either direction, and by twisting the two with a nail they can be brought up taut, holding the post erect.

This seems to be a very cheap solution of fence repairs, one that does not require a large amount of concrete and which makes it possible to renew a post here and there, as

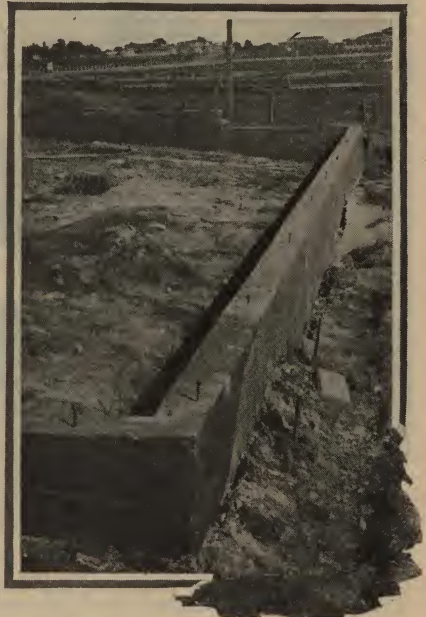
Manufacturers of Fence Post Molds

Abbott, H. F.	Jackson, Mich.
Bailey, W. W.	Chadwick, Ill.
D. & A. Post Mold Co.	Three Rivers, Mich.
Everlasting Fence Post Co.	Bloomington, Ill.
Electrical Cement Post Co.	Lake City, Ia.
Fence Post Supply & Mfg. Co.	Elburn, Ill.
Haas Post Machine Co.	York, Neb.
Ideal Concrete Machinery Co.	South Bend, Ind.
Illinois Concrete Machinery Co.	Buda, Ill.
Kerlin Automatic Post Machine Co.	Delphi, Ind.
Luck Cement Post Mold Co.	Aurora, Ill.
Marsh Company	970 Old Colony Bldg., Chicago
Michigan Cement Post Mold Co.	Detroit, Mich.
Moore Mold Co.	Sterling, Ill.
McElroy Post & Pole Co.	Cedar Rapids, Ia.
Miracle Pressed Stone Co.	Minneapolis, Minn.
Nebraska Concrete Co.	Omaha, Neb.
Ohio Post Mold Co.	Toledo, O.
Perfect Mold Co.	Kendallville, Ind.
Pyramid Post & Pole Co.	Cedar Rapids, Ia.
Twin Post Co.	Racine, Wis.

Cold Weather No Hindrance to Concreting

Concrete will not stand freezing before it has set. Cold delays hardening, and if freezing and thawing occurs before setting, it results in unsatisfactory concrete. Therefore you should take extreme precautions during the cold weather. Winter is your best time for making improvements of concrete on your farm, and yet you must remember that temperatures below 32 degrees are dangerous unless special care is taken. The precautions are as follows:

The materials, all except the cement, must be heated and used while warm. Second, the work should be protected for a week or ten days to give the concrete time to harden. The hotter the materials, the quicker the setting and hardening. A small stove built roughly of sheet iron will serve for a very small job of concreting. Two lengths of stove pipe, laid flat, with a fire built so that the gases go through the sand and gravel placed in a pile over the pipe is often



Poultry House Foundation

This poultry house foundation has bolts extending above the foundation level, for fastening the timbers of the superstructure.

sufficient. The most practical water heater for small work is an iron kettle with a roughly built up brick or concrete block setting. There is no excuse for not using warm water, as it means quicker work and better concrete. Another and perhaps better way for small work is to store the materials in a warm place, take out as needed and mix quickly. For protection, either cover the concrete with a thick layer of straw or manure for several days, or cover with lumber, closely fitting, and protect this with a tarpaulin.

Watch the concrete to see whether it is frozen or if setting has actually taken place. Heat a small portion and see if, when warm, it crumbles. This will mean that the concrete has become frozen and forms cannot be removed until it has warmed up and set permanently. A single freezing will not necessarily injure the work, providing forms are left on and it has a chance later to harden thoroughly.

The need of care should not prevent your doing excellent work in concrete during the cold weather. You have the most leisure at this time of the year. Big buildings everywhere are now carried on just the same in winter as in summer, and you can do just as successful work.

For the methods used by contractors on heavy construction send for our booklet, "Concreting in Cold Weather."



Banquet in a Dairy Barn

Mr. F. O. Butler, owner of the Natoma Farm, Hinsdale, Ill., after completing a modern sanitary dairy barn, invited a company of friends to a banquet held in the alley-way of his barn. Dairy products, such as milk, butter, cheese, were the main articles of diet. He proved that milk could be obtained under ideal sanitary conditions. Milk from such a dairy brings a high price. The added expense of concrete floors and runways is more than compensated for by the higher price of all products.

What Does the Department of Agriculture Mean to You?

The old adage, "The gods help those who help themselves," is true, and yet in many ways people today do not avail themselves of all helps that are theirs for the asking. If the farmer has a lot of concrete work to do he can experiment and finally work out the proper mixtures of cement, sand and gravel. He can find by experience what kind of a shovel or hoe is best for the work, but he can save himself a lot of time and trouble and expense by getting the books that the Government as well as the cement companies are distributing free. The last one issued by the United States Government, Bulletin No. 461 of the Farmers' Bulletin Series, tells the whole story of concrete mixing. Only a few of these have been distributed so far. Farmers may not realize that the Government is spending their own money in carrying out investigations and in printing these books of helpful suggestions.

The latest proposed government aid to agriculture is the plan to send out three thousand men to start a government farm in each county of the entire country. These men will be paid by the Government, by the State and by the County, the proper proportions not yet being decided upon. They will use all the information that the Government has spent years in obtaining, in cultivating the soil scientifically. They will probably grow crops that will be double and triple the average yield in many districts. The value will be far greater than would be an Experiment Station somewhere in a state, because, each of these Government men will be working in the exact soil and under the same climatic conditions that are found in his county. This practical demonstration work will show as nothing else will to those farmers who are not now taking advantage of the Government aid, what they are losing.

The Government has felt that concrete on the farm was an important



Twin Block Silos

These silos were built by the H. M. Johnson Lumber Co. at Baraboo, Wis., are 12x40 ft., and cost \$320.00 apiece. The chute is also of blocks and forms a connecting wall between the two.

enough subject to warrant a 24-page pamphlet on the choosing of materials and the mixing and placing of concrete.

While it may seem that some of the Government Bulletins take up subjects that are of no interest or direct value to the farmer, yet the majority of them are of interest and practical use, if the farmer will but study them. They will be of no value if left at Washington. The money spent in investigations is an utter waste unless the books get into the hands of those to whom they are addressed. Send for Farmers' Bulletin No. 461 and ask as well for a list of the Government publications in which, if you are not already using them for the betterment of farming methods, you will find many subjects touched that will be of real importance and interest to you.

The Prize Contest Winners

Letters and photographs to the number of several hundred were received in answer to the prize contests of "Farm Cement News," Vol. 2, No. 1. The contests closed October 15 and the winners were announced in the farm press. We print the winners' names below.

The letters and pictures show a full appreciation of the value of concrete for a wide variety of uses on the farm. It would be impossible to give more than a few of the winning letters and photos. We may include the best in future issues.

WINNERS IN PRIZE CONTESTS

I.

For the Best Letters Telling How I Used My First Bag of Cement.

Prizes.	Winners.	Address.
\$10.00.....	C. C. Cannon.....	Belmond, Iowa.
5.00.....	Will R. Chapman.....	West Farmington, Ohio.
3.00.....	John Hesprich.....	Lomira, Wis.
1.00.....	E. M. Inman.....	Millgrove, Ind.
1.00.....	V. Morgan.....	Walcott, N. D.

II.

For the Best Photographs of Concrete Work Done During the Last Year on the Farm.

Prizes.	Winners.	Address.
\$10.00.....	R. E. Draper.....	Arlington, Iowa.
5.00.....	Arnett Gauer.....	Oakland, Md.
3.00.....	H. Baumgartener.....	Wrightstown, Wis.
1.00.....	A. T. Ellingboe.....	Maynerd, Minn.
1.00.....	H. H. Coles.....	Chester Springs, Pa.

Note:—The winning photographs have been used as a frontispiece in this issue.

III.

For the Letters Telling the Most Novel Use of Cement on the Farm.

Prizes.	Winners.	Address.
\$10.00.....	Paul R. Strain.....	Wellsburg, W. Va.
5.00.....	J. Wesley Griffin.....	Warsaw, Ky.
3.00.....	Mrs. Mattie Galbraith.....	Sharpsburg, Ohio.
1.00.....	C. V. Hill.....	Ames, Iowa.
1.00.....	Bert Bird.....	Wheeler, Wis.

IV.

To the Farmer Telling of the Greatest Number of Different Uses to Which He Has Put Concrete on His Farm.

Prizes.	Winners.	Address.
\$10.00.....	G. R. Gay.....	Pittsfield, Ill.
5.00.....	C. K. Turner.....	Fowler, Kans.
3.00.....	J. Oscar Brooks.....	West Willow, Pa.
1.00.....	Fred Anderson.....	Ruthven, Iowa.
1.00.....	Arthur Van Ansdall.....	Kitchell, Ind.

The first prize letter in contest No. 4 is printed in full. It may have suggestions for other concrete users.

Pittsfield, Ill., October 14, 1911.

Universal Portland Cement Co., Chicago.

Prize Contest No. IV.

Gentlemen: I send you in this the different uses to which I have put concrete on my farm. Have tried to give it correct. Yours,

G. A. GAY.

- | | |
|--|--|
| 1. Retaining wall to hold fill around barn. | 33. Stopping rat holes in rock walls. |
| 2. Sheep barn foundation. | 34. Stopping leaks in wood troughs. |
| 3. Manger bottoms in sheep barn. | 35. Line fence posts. |
| 4. Approach to sheep barn doors. | 36. Gate posts. Large end posts. |
| 5. Pillars to set shed posts on. | 37. Braces to end and corner posts. |
| 6. Gutter to lead off water from barns. | 38. Buggy house foundation. |
| 7. Cow barn walls. | 39. Buggy house floor. |
| 8. Cow barn floor. | 40. Wood shed foundation. |
| 9. Cow barn partitions. | 41. Wood shed floor. |
| 10. Cow barn manger bottoms. | 42. Wagon shed foundation. |
| 11. Corn crib walls. | 43. Wagon shed floor. |
| 12. Corn crib floors. | 44. Approach to buggy house. |
| 13. Hog barn walls. | 45. Ice house foundation. |
| 14. Hog watering trough. | 46. Cellar floor. |
| 15. Hog barn floors. | 47. Cellar walls. |
| 16. Hog barn partitions. | 48. Patching plastering. |
| 17. Hog feeding platform. | 49. Concrete tiling for drainage. |
| 18. Hen house foundation. | 50. Concrete tiling for bleaching celerery. |
| 19. Hen house floors. | 51. Foundation for dog monument. |
| 20. Chicken shed floor. | 52. To keep an old rock wall from falling in, made as a brace. |
| 21. Colony house floor. | 53. Roller for garden and yard. |
| 22. Watering tanks. | 54. To kill rats, mixed with sugar and meal. |
| 23. Approaches to tanks. | 55. Chicken troughs. |
| 24. Abutment for holding drain tile at outlet. | 56. Hanging basket. |
| 25. Horse barn floors. | 57. Flower pot. |
| 26. Patching rock in walls where they had fallen in large patches. | 58. Chimney top. |
| 27. Walks, permanent. | 59. Doll to hold door open. Hand mounted, to hold door open. |
| 28. Walks in slabs, movable. | Slipper foot to hold door open. Salt box to hold door open. |
| 29. Cistern walls. | 60. Pillars for coal house. |
| 30. Cistern top. | 61. Stopping decayed places in trees. |
| 31. Well top. | 62. Filling small cracks in wheat bin. |
| 32. Stopping holes in board crib floors. | |

The UNIVERSAL Concrete Construction Booklets

We have prepared over twenty booklets of instructions for concrete users. A number of them are of special value for farmers. Our "Farm Cement News," Vol. 1, is a series of instruction papers covering almost the entire field of the small improvements for the farm. Our book, "Concrete in the Country," is a splendid text book, full of suggestions for every sort of construction. Others take up special subjects and each is good for its purpose. We have published these for *free* distribution. If you are thinking of building a barn foundation, a trough, concrete fence posts, or a concrete floor, choose from the list the books that will help you. We will gladly send them free. If you have further questions, write our INFORMATION BUREAU. They have helped thousands of farmers to make successful concrete work. With such help and with UNIVERSAL, you cannot but be satisfied with this modern, economical and sanitary material of construction.

"FARM CEMENT NEWS"—A series of illustrated instruction books for the farmer.

- No. 3. "Mixing, Placing and Choice of Materials for Concrete."
- No. 4. "Concrete Walks and Floors."
- No. 5. "Concrete Foundations."
- No. 6. "Concrete Troughs and Tanks."
- No. 7. "Concrete Line Fence Posts."
- No. 8. "Concrete Corner and End Posts."
- No. 9. "Concrete Building Blocks."
- No. 10. "Concrete Walls."

"PLANS, SPECIFICATIONS AND INSTRUCTIONS:"

- No. 1. "Cement Sidewalks."
- No. 2. "Cement Trough."
- No. 3. "Cement Porch and Steps."

"CONCRETE IN THE COUNTRY"—One hundred and twelve pages of simple instructions and illustrations for building farm structures of concrete.

"CEMENT DRAIN TILE"—An illustrated 30-page booklet embracing the results of an investigation into the durability of cement drain tile.

"CEMENT STUCCO"—An illustrated pamphlet on cement stucco containing specifications and table of colors to be used in cement plaster.

"CONCRETE SILOS"—An 88-page booklet on silage and the building of concrete silos, containing complete directions as to construction, photographs, drawings and cost data.

"CONCRETE PAVEMENTS"—The history of their use in this country, their cost and construction, with specifications and illustrations.

"CONCRETING IN COLD WEATHER"—A book of instructions for successfully carrying on concrete construction throughout the winter.



Real Improvements of Concrete—

Your winter's work must count for the permanent improvement of farm and home.



A concrete tank like this made with **UNIVERSAL** will make stock watering easy. You can make such work with **UNIVERSAL**. The highest grade of cement you can buy is **UNIVERSAL**.

The strongest concrete can be made with good clean materials, careful workmanship and

UNIVERSAL. For cold weather work the safest and surest cement is **UNIVERSAL**.

*Send us a post card asking for the book that will help you most, of those listed on page 31. We will send any **FREE**.*

Address the nearest office of the Company

UNIVERSAL PORTLAND CEMENT CO.

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Security Bank Building

PITTSBURGH
Frick Building

Plants at Chicago and Pittsburgh
Annual Output 48,000,000 Sacks



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